CLAIMS

1. In a trainable data classifier, a method of forming a measure of difference between first and second data vectors, the method comprising the steps of:

   determining an association coefficient of the first and second data vectors; and

   forming said measure of difference using said association coefficient.

2. A method according to claim 1 wherein the association coefficient comprises a Jaccard's coefficient.

3. A method according to claim 1 wherein the association coefficient comprises a paired absence measure.

4. A method according to claim 1 further comprising a step of determining a geometric difference between the first and second data vectors, and wherein the step of forming comprises a step of combining said association coefficient and said geometric difference to thereby form said measure of difference.

5. A method according to claim 4 wherein the geometric difference comprises a Euclidean distance.

6. A method according to claim 4 wherein the geometric difference comprises a geometric angle.

7. A method according to claim 4 wherein the step of combining comprises the step of combining the geometric difference and association coefficient in exponential relationship with each other.

8.   A method according to claim 7 wherein the step of combining comprises a step of multiplying a function of the geometric difference by an exponent of a function of the association coefficient.

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9.   A method according to claim 7 wherein the step of combining comprises a step of multiplying a function of the association coefficient by an exponent of a function of the geometric difference.

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10.   A method according to claim 1 wherein said trainable data classifier comprises a neural network.

11.   A method according to claim 1 wherein said first
15   and second data vectors comprise telecommunications account fraud data.

12.   A method of retraining a trainable data classifier that has been trained using a plurality of
20   data vectors including a first data vector, the method comprising the steps of:
        providing a second data vector;
        determining an association coefficient of the first and second data vectors;
25   forming a measure of conflict between said first and second data vectors using said association coefficient; and
        using the second data vector to retrain the data classifier responsive to the measure of conflict.

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13.   A method according to claim 11 wherein the step of using the second data vector to retrain the data classifier is responsive to a predetermined conflict threshold value.

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14.   A method according to claim 12 further comprising a step of determining a geometric difference between

the first and second data vectors, and wherein the
step of forming comprises a step of combining said
association coefficient and said geometric difference
to thereby form said measure of conflict.

15. A method of operating a trainable data
classifier, said trainable data classifier having been
trained using a plurality of training data vectors,
said plurality of training data vectors being
associated with a plurality of reasons, the method
comprising the steps of:
        providing an input data vector;
        generating an output responsive to the input data
vector;
        selecting one or more of said training data
vectors;
        for each selected training data vector:
        determining an association coefficient of said
input data vector and said selected training data
vector, and
        forming a measure of difference between said
input data vector and said selected training data
vector from said association coefficient; and
        using said measures of difference to associate at
least one of said reasons with said output responsive
to said measures of difference.

16. A method according to claim 13 further comprising
the step of presenting to a user information
indicative of said output, of said at least one of
said reasons, and of their association.

17. A method according to claim 13 further comprising
the step of using said measures of difference to
associate with at least one reason a degree of
confidence with which said reason is associated with
said input data vector.

18. A method according to claim 15 further comprising
a step of determining a geometric difference between
said input data vector and said selected training data
vector, and wherein the step of forming comprises a
5   step of combining said association coefficient and
said geometric difference to thereby form said measure
of difference.

19. A method of training a trainable data classifier
10   comprising the steps of:
        providing a training data set comprising at least
first and second data vectors;
        determining an association coefficient of said
first and second data vectors;
15   forming a measure of redundancy between said
first and second data vectors from said association
coefficient;
        modifying said training data set responsive to
said measure of redundancy; and
20   training said trainable data classifier using
said modified training data set.

20. A method according to claim 19 wherein the step
of forming a measure of redundancy is carried out with
25   reference to a predetermined redundancy threshold
value.

21. A method according to claim 19 further comprising
the step of discarding one of said first and second
30   data vectors responsive to said measure of redundancy.

22. A method according to claim 19 further comprising
a step of determining a geometric difference between
said first and second data vectors, and wherein said
35   step of forming comprises a step of combining said
association coefficient and said geometric difference
to thereby form said measure of redundancy.

23. A data classifier system comprising:

a data classifier operable to provide an output responsive to either of first or second data vectors; and

5   a data processing subsystem operable to determine an association coefficient of said first and second data vectors, to thereby form a measure of difference between said vectors.

10   24. A data classifier system according to claim 23 wherein the association coefficient comprises a Jaccard's coefficient.

25. A data classifier system according to claim 23 15   wherein the association coefficient comprises a paired absences coefficient.

26. A data classifier system according to claim 23 wherein the data processing subsystem is further 20   operable to determine a geometric difference between said first and second data vectors, and to form said measure of difference by combining said association coefficient and said geometric difference.

25   27. A data classifier system according to claim 26 wherein the geometric difference comprises a Euclidean distance.

28. A data classifier system according to claim 26 30   wherein the geometric difference comprises a geometric angle.

29. A data classifier system according to claim 26 wherein the data processing subsystem is operable to 35   form said measure of difference by combining said association coefficient and said geometric difference in exponential relationship with each other.

30.   A data classifier system according to claim 29
wherein said data processing subsystem is operable to
form said measure of difference by multiplying a
function of the geometric difference by an exponent of
5   a function of the association coefficient.

31.   A data classifier system according to claim 29
wherein said data processing subsystem is operable to
form said measure of difference by multiplying a
10   function of the association coefficient by an exponent
of a function of the geometric difference.

32.   A data classifier system according to claim 23
wherein said data classifier comprises a neural
15   network.

33.   An anomaly detection system comprising a data
classifier system according to claim 23.

20   34.   An account fraud detection system comprising a
data classifier system according to claim 23.

35.   A telecommunications account fraud detection
system comprising a data classifier system according
25   to claim 23.

36.   A network intrusion detection system comprising a
data classifier system according to claim 23.

30   37.   Computer software in a machine readable medium
for providing at least a part of a data classifier
system when executed on a computer system, the
software operable to perform the steps of:
        receiving first and second data vectors;
35   determining an association coefficient of the
first and second data vectors; and
        forming a measure of difference between said

first and second data vectors using said association
coefficient.

38.   Computer software in a machine readable medium
5   according to claim 37, further operable to perform the
step of determining a geometric difference between
said first and second data vectors, and to perform the
step of forming by carrying out a step of combining
said association coefficient and said geometric
10   difference to thereby form said measure of difference.